

Claims 18 and 19 are held allowable and the informalities noted by the Examiner have been corrected by the above amendments.

Prior to turning to the rejections, it is worthwhile noting that Applicants' invention as described in the specification and claims relates to EMI shielding apparatus for a portable electronic device characterized by "an electrically conductive fiber mesh net insert molded into wall surfaces defining an interior cavity of the device."

Applicants' invention overcomes the problems of the prior art by providing EMI shielding as an integral part of the cover forming the device in such a manner that economical mass-production techniques are usable in the manufacture. The EMI shield of the invention is an integral part of the housing enclosure or case of the electronic device because the electrically conductive fiber mesh net is insert molded into wall surfaces defining an interior cavity of the device.

The patent application specification at page 11, lines 8-18, recites a cover structure or housing shell 40 wherein fiber mesh net designated 42 is shown insert molded into a predefined interior cavity 44 formed by the wall 46 of the cover and internal walls 48, 50 of the inner side, or electronic circuitry facing side 52 of the cover 40. The interior cavity 44 is positioned in the cover to enclose the area ---- to be EMI shielded when the cover is placed on a receiving housing shell or base structure of the electronic device.

Further, the patent application specification at page 12, lines 18-20 and 33-34, specifies that the insert molded fiber mesh net 82 in the interior cavity 84 of the cover structure 80 as shown in Fig. 11 is shown in a cutaway view in Fig. 12 illustrating the co-action of the cover 80 with a receiving housing shell or base structure 90 of the electronic device. Clearly, Applicants' invention contemplates the EMI shielding to be an integral part of the cover of the electronic device. Applicants' invention further specifies fiber mesh net textile structures for carrying out the insert molding into wall surfaces defining an interior cavity of the device. Other features and advantages of Applicants' invention including those of allowable claims 18 and 19 are apparent from the specification and are not repeated here for the sake of brevity.

Claim Rejection Under 35 USC §§ 102 and 103

Claims 1-2, 8-9 and 16 have been rejected as being anticipated by the newly cited Knecht et.al. (U.S. Patent 5,313,371) reference. As for claims 1, 8 and 16, the Examiner alleges Knecht et.al. disclose an EMI shielding apparatus and a method as shown in Figures 1-5 for a portable electronic device characterized in that an electrically conductive fiber mesh net (202, Fig. 2A, column 3, line 49) insert molded (110, column 3, line 48, lines 66-68, and 201, 203, column 4, lines 13-15) into wall surfaces defining an interior cavity (referencing Fig. 2) of said electronic device; and said cavity having a size and shape and contour to surround first electronic circuitry within said electronic device referencing Fig. 1.

As to claims 2 and 9, the Examiner asserts that Knecht et.al. disclose an EMI shielding apparatus and a method as shown in Figs. 1-5 further characterized in that; at

least a portion of said inserts molded electrically conductive fiber mesh net (202) is in a substantial continuous physical and electrical contact with a ground plane (112, column 4, line 34) carried on a circuit board (104, column 4, line 31) within said electronic device.

Applicants have carefully considered the Examiner's comments and have studied the newly cited Knecht et.al. primary reference (U.S. Patent 5,313,371) relied upon by the Examiner to form the basis of the rejection of the claims of the application and respectfully traverse the Examiner's reasoning. Applicants further assert the Examiner is incorrect in attempting to use Knecht et.al. as the basis for disclosing EMI shielding as shown and claimed in the present invention and the application of Knecht would render applicants' invention inoperative.

Specifically, Knecht et.al. does not suggest, disclose or teach an electrically conductive fiber mesh net insert molded into wall surfaces and therefore lacks at least one essential element of Applicants' invention as disclosed and claimed. Further, Knecht et. al. teach away from a fiber mesh net for EMI shielding, but rather teaches a patterned conductive flash metalization layer deposited on the interior surface of the lid 102. Knecht et.al. do not teach nor show, nor contemplate, nor suggest the insert molding of an electrically conductive fiber mesh net into a wall of the electronic device as disclosed and claimed in the present invention. There is no mention that a fiber mesh net is used for EMI purposes or in fact is inserted into the inner contour of the lid 102, nor does the Examiner identify such a fiber mesh net in the Knecht reference or show any motivation

why one would use a fiber mesh net in the Knecht structure which fiber mesh net is required for Applicants' invention.

The purpose of the wire mesh 202 in Knecht et.al. is completely different from Applicants' fiber mesh net. The purpose in Knecht is to provide a patterned piece for deposition of the conductive flash metalization layer onto the interior surface of the cover 102. The wire mesh net is not retained in the cover and is not intended to be retained in the cover much less insert molded as disclosed and claimed in Applicants' invention. Note that the pattern 203 corresponds to the openings in the wire mesh through which the plating source 207 is used to deposit the conductive flash on the film 110. (See column 3, lines 44-68.)

Applicants also point out a further difference in that Knecht et.al. disclose that sputtering machines are well suited for carrying out the embodiment of his invention and that many lids 102 may be placed on a sputtering platen in a random arrangement, before a continuous wire mesh 202 is placed over them. The orientation of the pattern in the wire mesh 202 with respect to the edges of the lids 102 is unimportant. The wire mesh 202 is not used to provide EMI shielding nor is the wire mesh 202 left in place in the lid. Accordingly, not only is the wire mesh 202 not an electrically conductive fiber mesh net, it is not insert molded into the cover of the portable electronic device nor is the wire mesh flexible or woven in accordance with the teachings of the applicants' invention.

Furthermore, the sputtering technique of Knecht even if applied as alleged by the Examiner would not produce Applicants' invention as disclosed and claimed. Sputtering

cannot be used as a production method in a structure as contemplated by the application. Sputtering does not lend itself to a vacuum-process because it is too complicated, too slow and too expensive and defeats the economical mass production method as contemplated by the injection molding process of the present invention. Additionally, attempting to sputter a pattern as suggested by the Examiner results in a very thin metalization layer that cannot provide the conductivity required for EMI shielding as is realized in Applicants' invention. Further, sputtering cannot insert mold a conductive fiber mesh net as disclosed and claimed in Applicants' invention. Accordingly, applicants submit the Knecht et.al. reference is inapplicable and non-operative and request withdrawal of the reference and the rejection of the claims based on the Knecht reference.

Claims 6, 10-11 and 15, stand rejected as being unpatentable over Knecht et.al. in view of Lamp et.al. (U.S. Patent 3,580,981). The Examiner asserts Knecht et.al. disclose all of the limitations of the claimed invention except for the fiber mesh net being a bobbinet woven three directional mesh net. The Examiner alleges Lamp et.al. show an EMI shielding a gasket as shown in Figs. 1-4 having a fiber mesh net made by bobbinet woven in three directions. The Examiner concludes it would be obvious at the time the invention was made to modify the EMI shielding apparatus of Knecht et.al. and provide the fiber mesh net made by bobbinet woven in three directions as taught Lamp et.al. in order to dissipate heat and facilitate the shielding against EMI. First, as stated above, Applicants submit that Knecht et. al. does not suggest, disclose or teach a fiber mesh net or a fiber mesh net insert molded into wall surfaces and therefore lacks at least one essential element of Applicants' invention. Next, *Lamp* discloses a honeycombed

electrically conductive ventilating panel having a shielding gasket between the honeycomb and the frame of the cabinet holding the electronic equipment. The gasket of *Lamp* is not sufficient to provide EMI shielding and only provides protection for leakage between the two components. *Lamp* does not contemplate or show molding and uses a method similar to gluing. *Lamp* does not have a net of any type but a honeycomb structure, which is totally different than the structure of the present invention. Combining *Lamp* with Knecht, if such a combination could be made as alleged by the Examiner, does not overcome the fundamental deficiency of Knecht much less replicate Applicants' invention.

The Examiner combines the Knecht et.al. reference with the Bruner et.al. (U.S. Patent 5,795,835) to reject claims 7 and 12 indicating Bruner et.al. teaches a warp knit textile mesh and alleges that it would be obvious to modify the EMI shielding of Knecht et.al. to provide the warp knit textile mesh as taught by Bruner et.al. The *Bruner* reference discloses a knitted textile for use as a structural load bearing element in demanding earthwork construction applications. The *Bruner* structure is a plastic fiber which is a mechanically strong object and cannot be placed in a mold for insert molding to become an integral part of the cover of an electronic device. Again, combining Bruner with Knecht, if such a combination could be made as alleged by the Examiner, does not overcome the fundamental deficiency of Knecht much less replicate Applicants' invention.

The Examiner combines Knecht et.al. with Yoshikawa et.al. (U.S. Patent 6,150,754) to reject claims 3 and 13 asserting that Yoshikawa et.al. teaches the fiber

mesh net laminated to the polymer film sheet, and alleges that it would have been obvious to one skilled in the art to provide the fiber mesh net laminated to the polymer film sheet as taught by Bruner et.al. The *Yoshikawa* reference deals with a layer structure that is glued or laminated together and not molded and further deals with a transparent mesh member interposed between two transparent plates and bonded by adhesives. There is no suggestion or disclosure that *Bruner* can be insert molded, much less that *Bruner* can provide EMI shielding apparatus characterized by an electronically conductive fiber mesh net insert molded into wall surfaces defining an interior cavity of the device. Again, combining *Yoshikawa* with *Bruner* and *Knecht*, if such a combination could be made as alleged by the Examiner, does not overcome the fundamental deficiency of *Knecht* much less replicate Applicants' invention.

The Examiner has failed to set forth a *prima facie* case to establish why one of ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art or by implications contained in such teachings or suggestions. Just because the prior art can be modified in the way suggested by the Examiner does not make the modification obvious unless the desirability of the modification is suggested by the prior art.

Applicants further submit that the Examiner has attempted to establish obviousness by using hindsight in view of the teachings or suggestions of the application. As set forth above, there is no specific finding or a suggestion to combine the references as suggested by the Examiner, particularly in view of the lack of teaching by *Knecht* to use a mesh net for EMI shielding and more particularly the lack of any suggestion,

disclosure or teaching of an electrically conductive fiber mesh net insert molded into wall surfaces defining an interior cavity.

Applicants respectfully submit that independent claims 1, 6 and 8 are patentably distinguishable over the *Knecht* reference by specifying “an electrically conductive fiber mesh net insert molded into wall surfaces defining an interior cavity of the device. The remaining claims are dependent directly or indirectly upon independent claims 1, 6 and 8, and it is submitted that they too distinguish over the references for similar reasons and further for limitations clearly set forth therein.

CONCLUSION

In view of the foregoing, it is believed that all of the claims of this application are now in condition for allowance, and such action at an early date is earnestly solicited. In the event the Examiner fails to find this application to be in condition for allowance, it is requested that he contact Applicant's attorney so that an interview can be arranged to discuss the matter further.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with Markings to Show Changes Made".

Respectfully submitted,



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Version with Markings to Show Changes Made

18. (Amended) EMI shielding apparatus for a portable electronic device characterized by an electrically conductive fiber mesh net insert molded into wall surfaces defining an interior cavity of said electronic device, said cavity having a size, shape and contour to surround first electronic circuitry within said electronic device, said fiber mesh net further being laminated to a polymer film sheet, and further characterized in that said polymer film sheet has an electrically non-conductive surface opposite said fiber mesh net surface for carrying second electronic circuitry, and said fiber mesh net having at least a portion electrically coupled to said second electronic circuitry and to first electronic circuitry within said electrical device for passing electronic signals between said first and second electronic [circuitry] circuitries.

19. (Amended) EMI shielding apparatus as set forth in claim 18 further characterized in that said fiber mesh net is inserted molded into a cover portion of said electrical device such that said second electronic circuitry is electronically coupled to other electronic circuitry carried on the exterior of said cover and arranged for functional co-action with said second electrical circuitry to pass electrical signals between said other and said second [circuitry] electronic circuitries.